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**Schubert et al.**

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(54) **METHOD FOR THE SEPARATION OF  
CARBON DIOXIDE USING A POROUS  
METAL-ORGANIC FRAMEWORK  
MATERIAL**

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(57) **ABSTRACT**

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The present invention relates to a method for the separation of carbon dioxide from a gas mixture containing carbon dioxide comprising the steps of

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(a) contacting the gas mixture with at least one sorbent comprising a porous metal-organic framework material, the framework material taking up the carbon dioxide from the gas mixture and comprising at least one at least bidentate organic compound coordinately bound to at least one metal ion, wherein the at least bidentate organic compound comprises at least one substituted or unsubstituted amino group and wherein the at least one metal ion is an ion selected from the group of metals consisting of magnesium, calcium, strontium, barium, aluminium, gallium, indium, scandium, yttrium, titanium, zirconium, iron, copper and lanthanoids; and

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(52) **U.S. Cl.** ..... **95/139**; 423/230

(58) **Field of Classification Search** ..... 95/139,  
95/96, 148, 900; 423/220, 230  
See application file for complete search history.

(b) desorbing the carbon dioxide.

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**20 Claims, 3 Drawing Sheets**